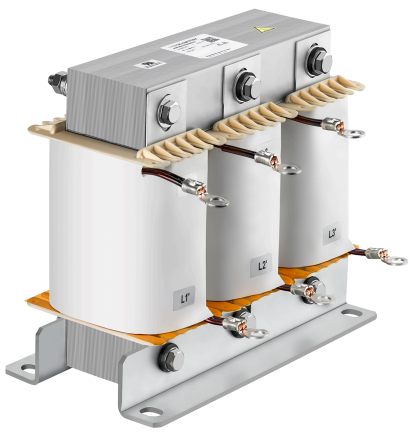
schaffner
MORE POWER TO YOU

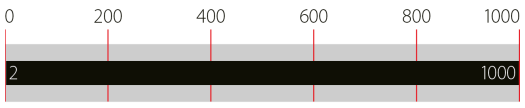
3-phase Line Reactor to reduce mains disturbances at 400 V



- 4% 3-phase line reactor for 400 V network
- Reducing harmonics on the mains side
- Reducing commutation notches
- Limiting inrush current
- Reliable and economical solution for mitigating mains disturbances

Performance indicators

Rated current [A]



Approvals & Compliances

(UL recognized up to 640 A)

Technical Specifications

Nominal operating voltage	3x 380 to 480 VAC
Rated operating voltage	3x 340 to 530 VAC
Rated currents	1.76 to 1010 A @ 45°C
Impedance	4% @ 400 V, 50 Hz and rated rms current
Overload capability	1.6x rated current for 1 minute, once per hour
Pollution degree	PD3
High potential test voltage	P -> P 3030 VAC, 1 s P -> E 3030 VAC, 1 s
Insulation class	UL electrical insulation system SCH-200(N)
Overvoltage category	OV III (IEC 60664-1 / UL 61800-5-1)
Protection category	IP 00
Climatic class	40/100/21 (IEC 60068-1)
Cooling	Natural cooling AN
Ambient temperature range	-40°C to +45°C fully operational +45°C to +100°C derated operation* -40°C to +100°C transport and storage
Design corresponding to	UL 61800-5-1, EN 61558-2-20, EN 60076-6
Earthing System	TN, TT, IT
Flammability corresponding to	UL 94 V-2
Lifetime (calculated)	20 years

* derating according NEC 310-15(C), Iderated = Inominal*SQRT((Tmax-Tamb)/(Tmax-Tnominal)) = Inominal*SQRT((100°C-Tamb)/55°C)

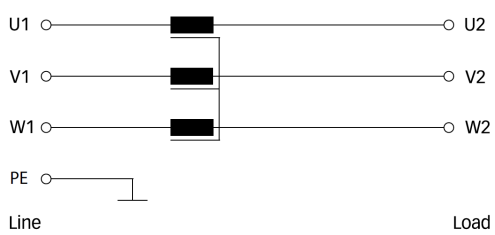
Features and Benefits

- Ensure reliability, performance and a long service life of electrical consumers
- Reduction of mains harmonics and commutation notches
- Help to meet international power quality standards
- Protection of motor drive electronics and dc link capacitors against mains transients
- Reduction of inrush and peak currents
- Improvement of conducted LF immunity
- Prevention from nuisance tripping caused by power line voltage spikes
- Improvement of true power factor

Typical Applications

- Motor drives and various adjustable speed drive systems, such as:
- HVAC
- Robots
- Machinery
- Process automation equipment

Typical electrical schematic



Reactor Selection Table

Reactor	Rated current @ 45°C [A]	Rated Power * @ 400V [kW]	Rated Power** @ 480V [kW]	Rated Power** @ 480V [HP]	Full load current*** [A]	Inductance value [mH]	Typical power losses [W]	Terminal	Weight [kg]	Weight [lbs]
RWK 3044-2-88-E0XXX	1.76	1.1	1.1/1.5	1.5	3	16.7	23	88	0.49	2.1
RWK 3044-3.5-88-E0XXX	3.53	2.2	2.2/3	3	5.5	8.3	32	88	0.89	2
RWK 3044-6.5-88-E0XXX	6.42	4	4/5.5	5	10	4.6	47	88	1.2	2.6
RWK 3044-9-88-E0XXX	8.82	5.5	5.5/7.5	7.5	13	3.3	61	88	1.7	3.7
RWK 3044-12-88-E0XXX	12.0	7.5	7.5/11	10	16	2.44	69	88	2.4	5.3
RWK 3044-18-89-E0XXX	17.6	11	11/15	15	24	1.67	103	89	3.4	7.5
RWK 3044-24-89-E0XXX	24.1	15	19	25	32	1.22	106	89	4.9	10.8
RWK 3044-30-92-E0XXX	29.7	18.5	22	30	38	0.99	124	92	5.1	11.2
RWK 3044-35-92-E0XXX	35.3	22	30	40	45	0.83	151	92	5.4	11.9
RWK 3044-48-92-E0XXX	48.1	30	37	50	60	0.61	172	92	8.8	19.4
RWK 3044-59-92-E0XXX	59.3	37	45	60	75	0.50	206	92	10.2	22.5
RWK 3044-72-99-E0XXX	72.2	45	55	75	90	0.41	294	99	10.3	22.7
RWK 3044-88-99-E0XXX	88.2	55	55/75	100	110	0.33	257	99	11.4	25.1
RWK 3044-120-99-E0XXX	120	75	90	125	150	0.24	324	99	13.8	30.4
RWK 3044-140-99-E0XXX	144	90	110	150	180	0.20	399	99	15.7	34.6
RWK 3044-180-99-E0XXX	176	110	132	175	210	0.17	456	99	20.0	44.1
RWK 3044-210-99-E0XXX	212	132	160	200	260	0.14	553	99	24.5	54
RWK 3044-260-99-E0XXX	257	160	200	250	320	0.11	593	99	27.5	60.6
RWK 3044-320-99-E0XXX	321	200	250	300-325	400	0.092	747	99	34.5	76.1
RWK 3044-400-99-E0XXX	401	250	315	400-425	530	0.073	1055	99	45.5	100.3
RWK 3044-510-99-E0XXX	505	315	355	450-475	555	0.058	1069	99	49.5	109.1
RWK 3044-570-99-E0XXX	569	355	400	500-525	750	0.052	1181	99	67.5	148.8
RWK 3044-640-99-E0XXX	642	400	450	600	900	0.046	1116	99	68.5	151
RWK 3044-800-99-E0XXX	802	500	550/630	700-800	935	0.037	1280	99	103	227.1
RWK 3044-1000-99-E0XXX	1010	630	750	900-1000	1120	0.029	1167	99	110	242.5

* Calculated at rated current, 400VAC and cos phi=0.90

** Calculated at rated current, 480VAC and cos phi=0.89

*** For reference in North America market

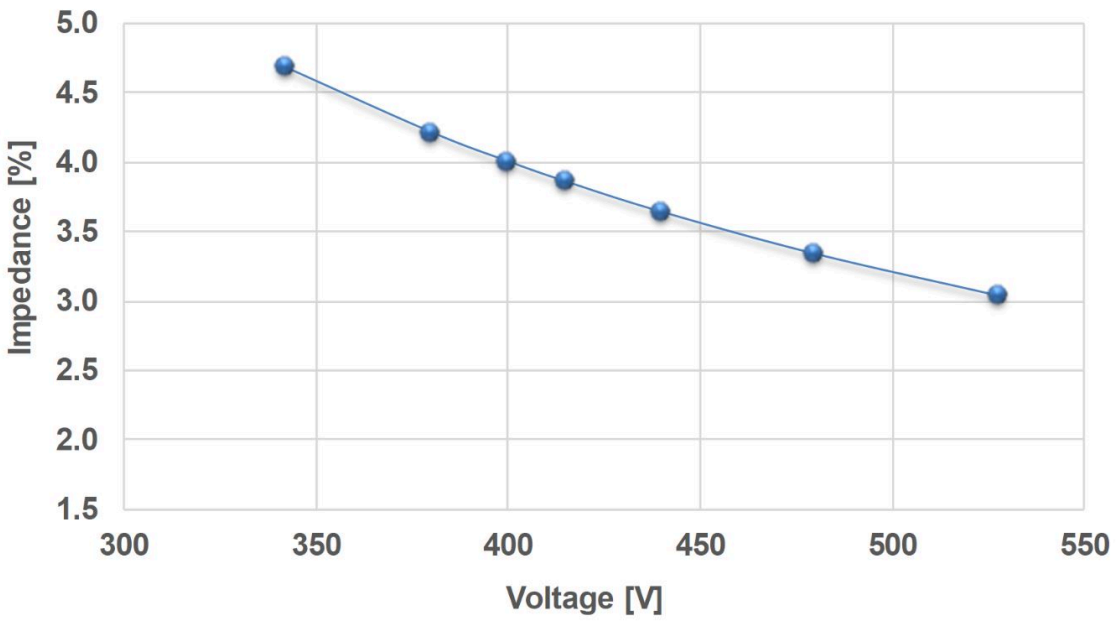
Terminals

Type	-88	-89	-92	-99
Ring cable shoe	-	-	M6	M8/M10/M12
Fork cable shoe	M3.5 width max. 6.4mm	M4 width max. 8.0mm	-	-
Flex wire AWG	22-16	16-14	-	-
Rec. torque	0.78 Nm	1.76 Nm	-	-

Earth Screw

Type	Size	Torque [Nm]	Torque [lbs-in]
2A	M2.5	0.3	2.7
3.5-12A	M3	0.6	5.3
18-35A	M4	1.7	15
48-120A	M6	4	35.4
140-1000A	M8	9	79.7

RWK 3044 Impedance Vs. Voltage



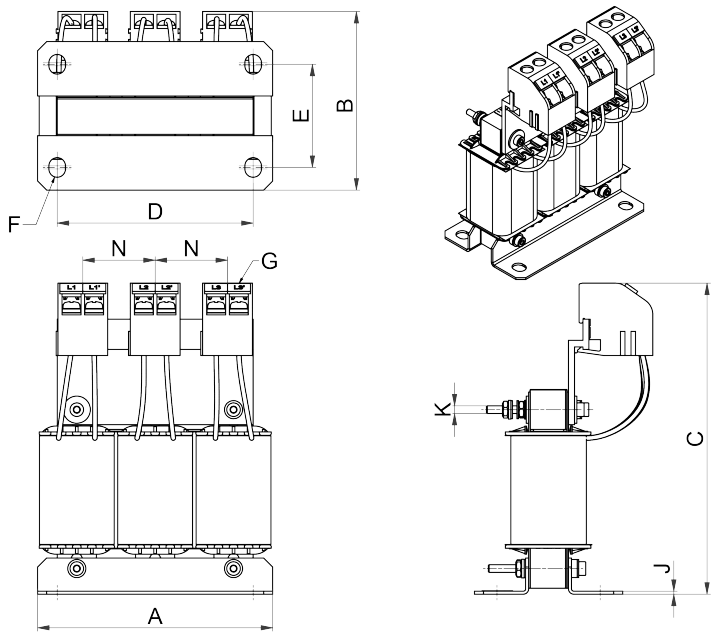
Product selector

RWK 30n m-xxx-yy-E0 XXX

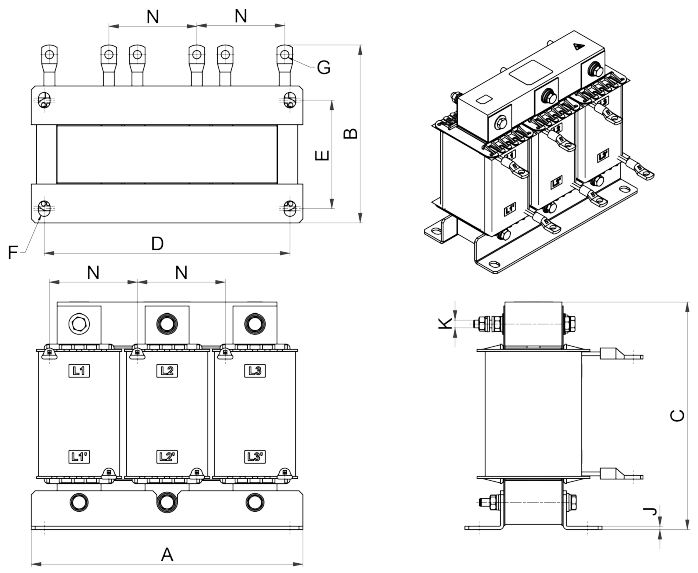
- For future options
- **E0:** IP00
- Load-side terminal
- Rated current
- **4:** 4 % impedance
  2: 2 % impedance
- **4:** 400 V rated voltage
  6: 690 V rated voltage

Mechanical Data

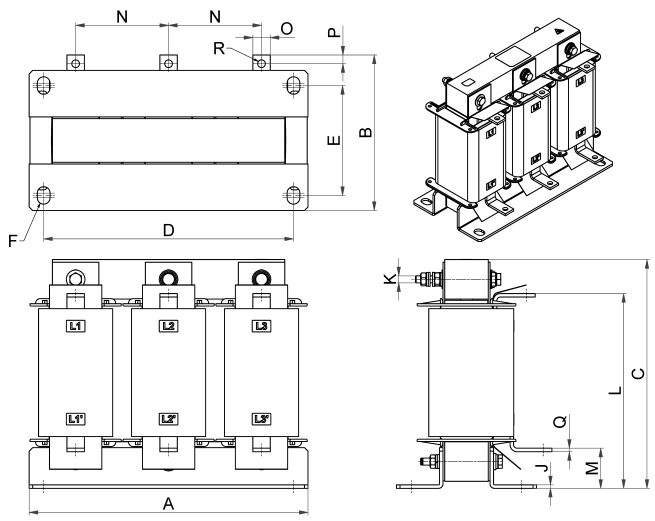
2 to 24A



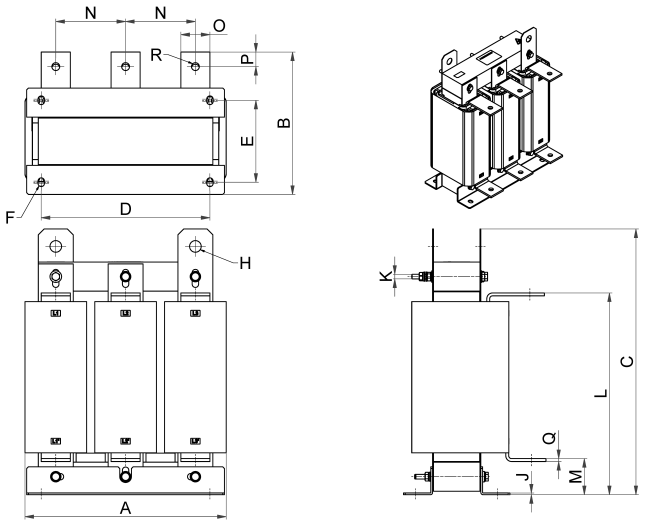
30 to 59A



72 to 180A



210 to 1000A



Dimensions In Mm*

RWK 3044	A	B±5	C±3	D	E	F	G	H	J	K	L±5	M±5	N±5	O	P	Q	R
2	78	59	103.1	65	34.2	6.5x5.5	-88		1	M2.5			24±1				
3.5	96	62.5	117.9	77	37.5	6.5x5.5	-88		1.5	M3			31±1				
6.5	125	69	136.1	110	44.8	8x5.5	-88		2	M3			41.5±1				
9	125	69	136.8	110	44.8	8x5.5	-88		2	M3			41.5±1				
12	125	78.5	136.4	110	54.5	8x5.5	-88		2	M3			41.5±1				
18	155	79	159.7	130	56.1	12x9	-89		2.5	M4			50±1				
24	155	94	159	130	71	12x9	-89		2.5	M4			50±1				
30	155	128	132	130	71	12x9	ø6.4		2.5	M4			50±4				
35	155	128	132.7	130	71	12x9	ø6.4		2.5	M4			50±4				
48	190	140	156.6	170	77.5	12x9	ø6.4		2.5	M6			60±4				
59	210	143	176	190	84	12x9	ø6.4		2.5	M6			68±4				
72	230	122.7	191	210	77.5	12x9			2.5	M6	163	30	76±4	15	7.5	3	ø6.6
88	240	133.9	196.7	215	94.5	15x11			3	M6	167.5	34.5	80±4	15	7.5	3	ø6.6
120	240	152.3	196.7	215	104.5	15x11			3	M6	168.5	34.5	80±4	20	10	4	ø9
140	265	148.9	217.5	240	99.7	15x11			3	M8	183	39	88±4	20	10	4	ø9
180	291	171.1	235	260	117.5	15x11			3	M8	198.5	39.5	96±4	25	12.5	4	ø11
210	290	189.4	234.2	260	131	15x11		n/a	3	M8	201.7	42.7	96	25	12.5	4	ø11
260	290	194.6	287.2	260	136	15x11		ø20	3	M8	206.2	42.2	100	25	12.5	4	ø11
320	340	198.9	333.5	290	121	15x11		ø20	3	M8	237.5	52.5	112	30	15	5	ø11
400	360	190.4	422.2	310	121	15x11		ø20	3	M8	297	62	125	30	15	5	ø11
510	360	203.7	422.6	310	121	15x11		ø20	3	M8	297	62	125	40	20	5	ø13.5
570	346±5	244	457	290	141	15x11		ø20	3	M8	347	62	120	50	25	5	ø13.5
640	347±5	244.8	457	290	141	15x11		ø20	3	M8	347	62	120	50	25	5	ø13.5
800	365±5	296.3	474	310	185	15x11		ø20	3	M8	373.5	55.5	130	50	25	8	ø13.5
1000	376±5	309	474	310	185	15x11		ø20	3	M8	379	61	130	50	25	8	ø13.5

* General tolerance: ISO 2768-v

Dimensions In Inches*

RWK 3044	A	B±0.2	C±0.12	D	E	F	G	H	J	K	L±0.2	M±0.2	N±0.2	O	P	Q	R
2	3.07	2.32	4.06	2.56	1.35	0.26x0.22	-3.46		0.04	M2.5			0.94±0.04				
3.5	3.78	2.46	4.64	3.03	1.48	0.26x0.22	-3.46		0.06	M3			1.22±0.04				
6.5	4.92	2.72	5.36	4.33	4.76	0.31x0.22	-3.46		0.08	M3			1.63±0.04				
9	4.92	2.72	5.39	4.33	1.76	0.31x0.22	-3.46		0.08	M3			1.63±0.04				
12	4.92	3.09	5.37	4.33	2.15	0.31x0.22	-3.46		0.08	M3			1.63±0.04				
18	6.1	3.11	6.29	5.12	2.21	0.47x0.35	-3.5		0.1	M4			1.97±0.04				
24	6.1	3.7	6.26	5.12	2.8	0.47x0.35	-3.5		0.1	M4			1.97±0.04				
30	6.1	5.04	5.2	5.12	2.8	0.47x0.35	Ø6.4		0.1	M4			1.97±0.16				
35	6.1	5.04	5.22	5.12	2.8	0.47x0.35	Ø6.4		0.1	M4			1.97+0.16				
48	7.48	5.51	6.17	6.69	3.05	0.47x0.35	Ø6.4		0.1	M6			2.36±0.16				
59	8.27	5.63	6.93	7.48	3.31	0.47x0.35	Ø6.4		0.1	M6			2.68±0.16				
72	9.06	4.83	7.52	8.27	3.05	0.47x0.35			0.1	M6	6.42	1.18	2.99±0.16	0.59	0.3	0.12	Ø6.6
88	9.45	5.27	7.74	8.46	3.72	0.59x0.43			0.12	M6	6.59	1.36	3.15±0.16	0.59	0.3	0.12	Ø6.6
120	9.45	6	7.74	8.46	4.11	0.59x0.43			0.12	M6	6.63	1.36	1.15±0.16	0.79	0.39	0.16	Ø9
140	10.43	5.86	8.56	9.45	3.93	0.59x0.43			0.12	M8	7.2	1.54	3.46±0.16	0.79	0.39	0.16	Ø9
180	11.46	6.74	9.25	10.24	4.63	0.59x0.43			0.12	M8	7.81	1.56	3.78±0.16	0.98	0.49	0.16	Ø11
210	11.42	7.46	9.22	10.24	5.16	0.59x0.43		n/a	0.12	M8	7.94	1.68	1.54	0.98	0.49	0.16	Ø11
260	11.42	7.66	11.31	10.24	5.35	0.59x0.43		Ø20	0.12	M8	8.12	1.66	1.56	0.98	0.49	0.16	Ø11
320	13.39	7.83	13.13	11.42	4.76	0.59x0.43		Ø20	0.12	M8	9.35	2.07	1.68	1.18	0.59	0.2	Ø11
400	14.17	7.5	16.62	12.2	4.76	0.59x0.43		Ø20	0.12	M8	11.69	2.44	1.66	1.18	0.59	0.2	Ø11
510	14.17	8.02	16.64	12.2	4.76	0.59x0.43		Ø20	0.12	M8	11.69	2.44	2.07	1.57	0.79	0.2	Ø13.5
570	13.62±0.2	9.61	17.99	11.42	5.55	0.59x0.43		Ø20	0.12	M8	13.66	2.44	2.44	1.97	0.98	0.2	Ø13.5
640	13.66±0.2	9.64	17.99	11.42	5.55	0.59x0.43		Ø20	0.12	M8	13.66	2.44	2.44	1.97	0.98	0.2	Ø13.5
800	14.37±0.2	11.67	18.66	12.2	7.28	0.59x0.43		Ø20	0.12	M8	14.7	2.19	2.44	1.97	0.98	0.31	Ø13.5
1000	14.8±0.2	12.17	18.66	12.2	7.28	0.59x0.43		Ø20	0.12	M8	14.92	2.4	2.44	1.97	0.98	0.31	Ø13.5

* General tolerance: ISO 2768-v

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